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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,847	07/20/2006	Michel Manin	0336-066	1554

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Potomac Patent Group PLLC
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EXAMINER	
MURPHY, DANIEL L	

ART UNIT	PAPER NUMBER
3663	

NOTIFICATION DATE	DELIVERY MODE
01/19/2012	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

tammy@ppglaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/586,847	MANIN ET AL.	
	Examiner	Art Unit	
	DANIEL L. MURPHY	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 October 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-17* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-17* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *20 July 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The proposed reply filed on 10/18/2011 has been entered. In the amendment, claims 1, 5, 6, 12-13, 15, and 17 have been amended. The objection to claim 17 has been withdrawn. The rejection of claims 12 and 13 under 35 U.S.C. 101 has been withdrawn. The rejection of claims 5 and 6 under 35 U.S.C. 112, second paragraph has been withdrawn.

Response to Arguments

2. Applicant's arguments with respect to the rejections of claims 1-17 under 35 U.S.C. 103 have been considered but are moot in view of the new ground(s) of rejection.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "62" has been used to designate both a battery in FIG. 9 and a flap in FIG. 16. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top

margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 6, 7, 10, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vandenbroucke ("Method and Device Intended for Seismic Exploration of an Underwater Subsurface Zone Using Seismic Receivers Coupled with the Water Bottom," U.S. Patent No. 6,625,083, September 23, 2003, hereinafter "Vandenbroucke") in view of Berg et al. ("Geophysical Method and Apparatus," U.S. Patent No. 6,975,560, December 13, 2005, hereinafter "Berg") and Cyr et al. ("Modular Penetrometer," U.S. Patent No. 5,493,895, February 27, 1996, hereinafter "Cyr").

6. As to claim 1, Vandenbroucke teaches a system for seismic exploration of a submerged sub-surface (Abstract) comprising:

- a plurality of bases located at predetermined seabed positions (col. 4, lines 21-23), each base comprising,

- an elongate stem penetrating the seabed (FIG. 1, reference number 2; col. 3, lines 45-47),
- at least a seismic sensor within said stem (FIG. 1, reference numbers 3,4; col. 3, lines 45-49), and
- a radially extending support zone connected to the housing, said upper end projecting from the seabed (FIG. 1, reference number 7; col. 3, lines 53-59; removable float 7 is radially extended as shown in FIG. 1, and provides support for recovery of the unit and for prevention of burial of the unit in the sea floor); and

- a respective plurality of modules each incorporating a data storage unit (FIG. 1, reference numbers 5, 51, 52; col. 3, lines 49-52), each module being mechanically and electrically connected to the upper end of said stem (see FIG. 1, in which signals from sensors 4 are denoted by a dashed arrow), said module being capable of being disconnected from the base (col. 4, lines 30-35, lines 39-55).

7. However, Vandenbroucke does not teach that each module includes a power source. Vandenbroucke also does not teach the modules being capable of being connected to, and disconnected from, the base by an underwater vehicle. Vandenbroucke further does not teach a housing connected to an upper end of the stem, and a module being configured to be disposed within the housing.

8. Berg teaches that each module includes a power source (col. 6, lines 51-62; col. 9, lines 33-34). Berg also teaches deployment and recovery of ocean bottom seismic

units by a remotely operated vessel (ROV) (FIGS. 8 and 9; col. 8, line 50 to col. 9, line 6), and therefore suggests the modules being capable of being connected to, and disconnected from, the base by an underwater vehicle. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a system for seismic exploration of a submerged sub-surface comprising: a plurality of bases located at predetermined seabed positions, each base comprising an elongate stem penetrating the seabed, at least a seismic sensor within said stem, and a radially extending support zone connected to the upper end of the stem, said upper end projecting from the seabed; and a respective plurality of modules each incorporating a data storage unit, each module being mechanically and electrically connected to the upper end of said stem, said module being capable of being disconnected from the base, as taught by Vandenbroucke, in combination with each module including a power source, and the modules being capable of being connected to, and disconnected from, the base by an underwater vehicle as taught and/or suggested by Berg, since such combination facilitates reuse of the modules.

9. Cyr teaches a device for exploration of a submerged sub-surface (Abstract; the device of Cyr includes at least a penetrometer) that includes a housing with a recess at its upper end for containing electronics including a transponder (FIG. 2; col. 2, lines 29-52), and therefore suggests a housing connected to an upper end of the stem, and a module being configured to be disposed within the housing. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a system for seismic exploration of a submerged sub-surface comprising: a plurality of bases located

at predetermined seabed positions, each base comprising an elongate stem penetrating the seabed, at least a seismic sensor within said stem, and a radially extending support zone connected to the upper end of the stem, said upper end projecting from the seabed; and a respective plurality of modules each incorporating a data storage unit, each module being mechanically and electrically connected to the upper end of said stem, said module being capable of being disconnected from the base, as taught by Vandenbroucke, in combination with a housing connected to an upper end of the stem, and a module being configured to be disposed within the housing as suggested by Cyr, since such combination can secure the module in position in the stem.

10. As to claim 6, Vandenbroucke as modified by Berg and Cyr teaches the system of claim 1 as just discussed. However, neither Vandenbroucke nor Berg teaches means for sealing the housing in the absence of a module. Cyr teaches that the housing can be sealed at its upper end, and this is true whether or not the housing contains a module. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the system of claim 1 as taught by Vandenbroucke as modified by Berg and Cyr, in combination with the housing being sealable at its upper end as further taught by Cyr, since such combination can prolong the usable life of the system.

11. As to claim 7, Vandenbroucke further teaches that the support zone presents an acoustic signature enabling identification thereof by a sonar carried by an underwater vehicle (col. 4, lines 4-10; col. 5, lines 3-5).

12. As to claim 10, Vandenbroucke further teaches that the module includes means for transmitting and/or receiving of an acoustic signal (col. 5, lines 2-7).

13. As to claim 15, Vandenbroucke teaches a method of seismic exploration of a submerged subsurface (Abstract), comprising the steps of:

- lowering near a predetermined seabed position, a base having an elongate stem and at least a seismic sensor within said stem, a radially extending support zone being connected to the upper end of the stem (FIG. 1, reference numbers 2-4 and 7; col. 3, lines 45-49 and 53-59; col. 4, lines 21-23; removable float 7 is radially extended as shown in FIG. 1, and provides support for recovery of the unit and for prevention of burial of the unit in the sea floor), and
- anchoring the stem to the seabed while keeping its upper end projecting from the seabed (col. 1, lines 50-59).

14. However, Vandenbroucke does not specifically teach that the radially extending support zone is connected to the upper end of the stem via its connection to a housing connected to the upper end of the stem. Vandenbroucke also does not teach connecting a module including data storage means and a power source to the housing by means of an underwater vehicle, repeating the steps above for each seabed position at which seismic data must be acquired, and disconnecting said modules from the respective bases after completion of the seismic acquisition by means of an underwater vehicle.

15. Berg teaches a module including data storage means and a power source (col. 6, lines 51-62; col. 9, lines 33-34). Berg also teaches deployment and recovery of ocean

bottom seismic units by a remotely operated vessel (ROV) (FIGS. 8 and 9; col. 8, line 50 to col. 9, line 6) and therefore suggests connecting a module including data storage means and a power source to the upper end of the stem by means of an underwater vehicle, and further suggests repeating the steps above for each seabed position at which seismic data must be acquired (see for example, col. 8, line 61 to col. 9, line 2), and further suggests disconnecting said modules from the respective bases after completion of the seismic acquisition by means of an underwater vehicle (see for example, col. 9, lines 3-6). It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a method of seismic exploration of a submerged subsurface, comprising the steps of lowering near a predetermined seabed position, a base having an elongate stem and at least a seismic sensor within said stem, a radially extending support zone being connected to the upper end of the stem, and anchoring the stem to the seabed while keeping its upper end projecting from the seabed as taught by Vandenbroucke, in combination with connecting a module including data storage means and a power source to the upper end of the stem by means of an underwater vehicle, repeating the steps above for each seabed position at which seismic data must be acquired, and disconnecting said modules from the respective bases after completion of the seismic acquisition by means of an underwater vehicle as taught and/or suggested by Berg, since such combination facilitates reuse of the units.

16. Cyr teaches a device for exploration of a submerged sub-surface (Abstract; the device of Cyr includes at least a penetrometer) that includes a housing with a recess at its upper end for containing electronics including a transponder (FIG. 2; col. 2, lines 29-

52), and therefore suggests a housing connected to an upper end of the stem, and a module being configured to be disposed within the housing, and therefore further suggests that the radially extending support zone is connected to the upper end of the stem via its connection to a housing connected to the upper end of the stem, and connecting a module including data storage means and a power source to the housing. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a method of seismic exploration of a submerged subsurface, comprising the steps of lowering near a predetermined seabed position, a base having an elongate stem and at least a seismic sensor within said stem, a radially extending support zone being connected to the upper end of the stem, and anchoring the stem to the seabed while keeping its upper end projecting from the seabed as taught by Vandenbroucke, in combination with the radially extending support zone being connected to the upper end of the stem via its connection to a housing connected to the upper end of the stem, and connecting a module including data storage means and a power source to the housing as suggested by Cyr, since such combination can secure the module in position in the stem, and afford at least some protection from the undersea environment.

17. As to claim 16, Vandenbroucke further teaches that the base is anchored to the seabed by free fall towards the seabed (FIG. 1; col. 5, lines 39-46).

18. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vandenbroucke in view of Berg and Cyr, and further in view of Clark ("Variable Buoyancy Float," U.S. Patent No. 3,256,539, June 21, 1966, hereinafter "Clark").

19. As to claim 2, Vandenbroucke as modified by Berg and Cyr teaches the system of claim 1 as discussed above. However, neither Vandenbroucke nor Berg nor Cyr teaches that the base includes a mooring element for an underwater vehicle. Clark teaches a base that includes a mooring element for an underwater vehicle. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the system of claim 1 as taught by Vandenbroucke as modified by Berg and Cyr, in combination with the base including a mooring element for an underwater vehicle as taught by Clark, since such combination can facilitate operations that use a remotely operated vessel (ROV).

20. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vandenbroucke in view of Berg, Cyr, and Clark, and further in view of Flude ("Casing for Boreholes," U.S. Patent No. 2,224,565, December 10, 1940, hereinafter "Flude").

21. As to claim 3, Vandenbroucke as modified by Berg, Cyr, and Clark teaches the system of claim 2 as just discussed. However, not one of Vandenbroucke, Berg, Cyr, or Clark teaches that the module is fitted onto the base by means of a sliding motion then by a rotation about an axis parallel to the direction of the sliding motion. Flude teaches a bayonet-type connection for borehole casing that provides a secure attachment between sections, yet is straightforward to connect and disconnect (FIG. 7; col. 3, lines

47-55), and therefore suggests a module being fitted onto the base by means of a sliding motion then by a rotation about an axis parallel to the direction of the sliding motion. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the system of claim 1 as taught by Vandenbroucke as modified by Berg, Cyr, and Clark, in combination with a module being fitted onto the base by means of a sliding motion then by a rotation about an axis parallel to the direction of the sliding motion as suggested by Flude, since such combination provides a simple reliable attachment-detachment means.

22. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vandenbroucke in view of Berg, Cyr, Clark, and Flude, and further in view of Keckler et al. ("Marine Seismic Streamer Employing Variable Aperture Flow Through Spacers," U.S. Patent No. 4,775,962, October 4, 1988, hereinafter "Keckler").

23. As to claim 4, Vandenbroucke as modified by Berg teaches the system of claim 3 as just discussed. However, not one of Vandenbroucke, Berg, Cyr, Clark, or Flude teaches that the support zone presents orifices extending in a direction not perpendicular to a longitudinal direction of the stem. Keckler teaches an underwater seismic prospecting device that includes longitudinally configured apertures to allow fluid flow to reduce pressure build-up (Abstract; FIGS. 3 and 4), and therefore suggests presenting orifices extending in a direction not perpendicular to a longitudinal direction of the stem to mitigate pressure buildup during module insertion into the stem by affording venting of displaced seawater. It would have been obvious to one of ordinary

skill in the art to utilize the system of claim 3 as taught by Vandenbroucke as modified by Berg, Cyr, Clark, and Flude, in combination with presenting orifices extending in a direction not perpendicular to a longitudinal direction of the stem as suggested by Keckler, since such combination reduces module replacement time.

24. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vandenbroucke in view of Berg and Cyr, and further in view of Wrobel ("Rotatable LED Cluster Device," U.S. Patent No. 5,160,201, November 3, 1992).

25. As to claim 5, Vandenbroucke as modified by Berg and Cyr teaches the system of claim 1 as discussed above. However, not one of Vandenbroucke, Berg, or Cyr teaches that the housing includes a slot for receiving a handle of the module. Wrobel teaches an electronic device having a cylindrical base with protrusions that engage slots in a corresponding cylindrical holder to secure the device in the holder for operation of the device (Abstract; FIG. 1; bayonet-type bases are widely used, so would be known as a connecting and securing means; see also Flude, cited above with regard to claim 3) and therefore suggests that the housing includes a slot for receiving a handle of the module. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the system of claim 1 as taught by Vandenbroucke as modified by Berg and Cyr, in combination with the housing including a slot for receiving a handle of the module as suggested by Wrobel, since such combination secures engagement of the module with the housing.

26. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vandenbroucke in view of Berg, and further in view of Lunde et al. ("Method of Making a Marine Seismic Streamer," U.S. Patent No. 6,477,111, November 5, 2002, hereinafter "Lunde").

27. As to claim 8, Vandenbroucke as modified by Berg teaches the system of claim 1 as discussed above. However, neither Vandenbroucke nor Berg teaches that the module has a density roughly equal to 1. Lunde teaches addition of a low density liquid or other buoyant material to a seismic streamer designed to be towed underwater (Abstract; col. 3, line 62 to col. 4, line 36), and shows that it is known to control density of instrument packages used underwater for seismic exploration, therefore suggesting configuring the module so as to have a density roughly equal to 1. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the system of claim 1 as taught by Vandenbroucke as modified by Berg, in combination with the module having a density roughly equal to 1 as suggested by Lunde, since such combination facilitates conveyance of the module through seawater if need be.

28. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vandenbroucke in view of Berg, and further in view of Bibee et al. ("Seismic Penetrator Technology for Use in Shallow Water Seismoacoustics," OCEANS '93, Proceedings IEEE, October 1993, pp. I450-I454, hereinafter "Bibee").

29. As to claim 9, Vandenbroucke as modified by Berg teaches the system of claim 1 as discussed above. However, neither Vandenbroucke nor Berg teaches that the

module includes a clock. Bibee teaches a module that includes a clock (I-452, first column, 2nd paragraph, lines 6-8). It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the system of claim 1 as taught by Vandenbroucke as modified by Berg, in combination with the module including a clock as taught by Bibee, since such combination enables synchronization of data collection and processing.

30. As to claim 11, Vandenbroucke as modified by Berg teaches the system of claim 1 as discussed above. However, neither Vandenbroucke nor Berg teaches that the stem of the base has a height ranging between 1 and 40 metres. Bibee teaches the stem of the base has a height ranging between 1 and 40 metres (FIG. 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the system of claim 1 as taught by Vandenbroucke as modified by Berg, in combination with the stem of the base having a height ranging between 1 and 40 metres, as taught by Bibee, since such combination provides secure attachment to the seafloor.

31. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vandenbroucke in view of Berg, and further in view of Takeuchi et al. ("Memory System to Perform Data Transfer by a Contactless Electromagnetic Induction Coupling System Using Induction Coils," U.S. Patent No. 4,953,123, August 28, 1990, hereinafter "Takeuchi").

32. As to claim 12, Vandenbroucke as modified by Berg teaches the system of claim 1 as discussed above. However, neither Vandenbroucke nor Berg teaches that the

module is electrically connected to the base by a contactless coupling. Takeuchi teaches a contactless coupling for data transfer (Abstract; FIGS. 1 and 2; col. 4, line 14 to col. 5, line 20), and therefore suggests that the module is electrically connected to the base by a contactless coupling for electromagnetic signal transfer. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the system of claim 1 as taught by Vandenbroucke as modified by Berg, in combination with the module begin electrically connected to the base by a contactless coupling as taught and/or suggested by Takeuchi, since such combination affords data transfer between the module and the sensor in the base.

33. As to claim 13, Vandenbroucke as modified by Berg and Takeuchi teaches the system of claim 12 as just discussed. However, neither Vandenbroucke nor Berg teaches that the contactless coupling is a magnetic link. Takeuchi further teaches that the contactless coupling is a magnetic link (FIGS. 1 and 2; col. 4, line 14 to col. 5, line 20). It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the system of claim 12 as taught by Vandenbroucke as modified by Berg and Takeuchi, in combination with the contactless coupling being a magnetic link as further taught by Takeuchi, since such combination affords data transfer between the module and the sensor in the base.

34. Claims 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vandenbroucke in view of Berg, and further in view of Svenning et al. ("Seismic Cable Device," U.S. Patent No. 5,442,590, August 15, 1995, hereinafter "Svenning").

35. As to claim 14, Vandenbroucke as modified by Berg teaches the system of claim 1 as discussed above. However, neither Vandenbroucke nor Berg teaches additional bases connected to at least one of said bases by cable. Svenning teaches connecting seafloor embeddable seismic detection units by cable (col. 1, lines 63-66; col. 3, lines 40-43), and therefore suggests additional bases connected to at least one of said bases by cable. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the system of claim 1 as taught by Vandenbroucke as modified by Berg, in combination with additional bases connected to at least one of said bases by cable, as suggested by Svenning, since such combination enables consolidation of data storage, processing, and/or retrieval.

36. As to claim 17, Vandenbroucke as modified by Berg teaches the method of claim 15 as discussed above. However, neither Vandenbroucke nor Berg teaches that the base is anchored to the seabed by driving said stem into the seabed. Svenning teaches that the base is anchored to the seabed by driving said stem into the seabed (col. 2, lines 3-12; col. 3, lines 33-35). It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the method of claim 15 as taught by Vandenbroucke as modified by Berg, in combination with the base being anchored to the seabed by driving said stem into the seabed, as taught by Svenning, since such combination ensures good mechanical contact with the seabed to improve shear wave detection.

Conclusion

37. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

38. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL L. MURPHY whose telephone number is (571)270-3194. The examiner can normally be reached on Monday through Friday, 8:30 am to 5:00 pm Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. L. M./
Examiner, Art Unit 3663

/JACK W KEITH/
Supervisory Patent Examiner, Art Unit 3663